

**UNITED STATES OF AMERICA  
DEPARTMENT OF TRANSPORTATION  
FEDERAL AVIATION ADMINISTRATION  
RENTON, WASHINGTON 98055-4056**

<p>In the matter of the petition of</p> <p><b>Daimler-Benz Aerospace Airbus GmbH</b></p> <p>for an exemption from §§ 25.785(d), 25.813(b), 25.857(e), and 25.1447(c)(1) &amp; (c)(3)(ii) of the Federal Aviation Regulations</p>	<p><b>Regulatory Docket No. 28288</b></p>
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**GRANT OF EXEMPTION**

By letter LQK12-111/04/95 dated April 12, 1995, Mr. Manfred Besinger, LQK, Director, Quality Assurance Development/Procurement, Daimler-Benz Aerospace Airbus GmbH, Kreetzlag 10, D-21129 Hamburg, P.O. Box 95 01 09, D-21111 Hamburg, Germany, petitioned for an exemption from the requirements of §§ 25.785(d), 25.813(b), 25.857(e), and 25.1447(c)(1) & (c)(3)(ii) for Airbus Model A310-221/-222 freighter airplanes, to allow the carriage of up to four supernumeraries on the main deck in addition to the maximum of four flight deck occupants, for a total occupancy of eight.

**Sections of the FAR affected:**

Section 25.785(d) at Amendment 25-32 requires, in pertinent part, that there be a firm handhold to enable occupants to steady themselves when using the aisles in moderately rough air.

Section 25.813(b) at Amendment 25-32 requires, in pertinent part, that each passenger emergency floor level exit equipped with an assist means have an assist space next to it.

Section 25.857(e) at Amendment 25-32 requires, in pertinent part, that when a class E cargo compartment is installed on the airplane, the airplane is used for carriage of cargo only.

Section 25.1447(c)(1) at Amendment 25-41 requires, in pertinent part, that oxygen masks be automatically presented to each seated occupant, with manual backup, and that there be ten percent more oxygen masks than occupants.

Section 25.1447(c)(3)(ii) at Amendment 25-41 requires two oxygen masks, similar to those required above, in each lavatory.

### **Related Sections of the FAR**

Section 121.583(a) contains, in pertinent part, a listing of categories of the people who may be carried aboard an airplane in part 121 service without complying with all the passenger-carrying airplane requirements of part 121.

### **The petitioner's supportive information is as follows:**

"The Airbus A310-222/-222 is a pressurized, transport category airplane powered by two turbofan engines. It is included on the United States (U.S.) Type Certificate No. A35EU, first issued on May 30, 1974. The converted A310-221/-222 PAX to Freighter airplane will have an all-cargo main deck configuration....

"In order to optimize cargo missions, accommodation for 4 persons is provided between the flight deck and the main deck Class E compartment, in the direct vicinity of the exits. Except for the sections from which exemption is requested, all design criteria applicable to the carriage of passengers have been taken into account for the design of this seating arrangement. In particular, protection from crash injury and from the penetration of smoke and noxious gases is provided by a 9g crash net and a smoke-tight curtain, which isolate the main deck cargo compartment from the zone where the supernumerary persons are seated. Two emergency exits remain operable, one on each side of the fuselage, each equipped with escape slides. Oxygen supply in case of depressurization (as required in case of smoke warning in the main deck cargo compartment) is ensured by fixed oxygen bottles, which can supply oxygen for all occupants for the maximum possible duration. The occupants are instructed that oxygen masks need to be used by a chime and lighted signs located in their direct eye scan. These information signs can be either manually activated by the flight crewmembers or automatically turned on by an altitude pressure switch. The front of the mask box is fitted with two half-doors, one of which is actuated by the removal of the mask from its housing and initiates the automatic opening of a miniature oxygen valve. Two-way communication with the cockpit is possible through dedicated communication panels, and other emergency equipment required by the applicable Airworthiness Standards is also provided. [Daimler-Benz Aerospace Airbus GmbH, hereafter designated as "DA,"] believes that an equivalent level of safety with the parts of the requirements from which relief is sought will be achieved by design precautions and by

introduction of instructions in the A310-221/-222 P/F Airplane Flight Manual Supplement defining the conditions under which supernumerary persons may be carried.

#### "EXTENT OF THE REQUESTED REGULATORY RELIEF

"The main purpose of this request for exemption is to permit carriage of non-crewmembers on an all-freighter airplane, which is the direct reason for requesting exemption from § 25.857(e). Other sections from which exemption is sought are subordinate to this first one. Exemption from the aforesaid sections is sought to the following extent:

"Section 25.785(d): no hand hold is installed.

"Section 25.813(b): assist space is not provided next to the emergency exits.

"Section 25.857(e): relief is sought to permit carriage of 4 persons on an all-freighter airplane, which has a Class E cargo compartment.

"Section 25.1447(c)(1): one oxygen dispensing unit is supplied and readily available for every seated occupant. The occupants will take hold of the mask upon instruction via lighted signs and chime controlled by the flight crew.

"Section 25.1447(c)(3)(ii): one oxygen mask is stored in the lavatory. It can be connected to the fixed oxygen distribution system.

#### "SUPPORTING ARGUMENTS

"1. The cargo operators need for their missions a number of support personnel necessary for the safe handling of the cargo in the process of loading/off loading. Such personnel are obviously needed both at departure and arrival of a cargo flight. It is particularly important that the cargo handlers are present upon airplane arrival if perishable goods or live animals are carried. The most efficient, surest, and cheapest way to assure their attendance at destination airports is to transport them aboard the cargo flight.

"2. Among their various missions, the cargo operator may have to carry goods such as live animals, hazardous materials, and valuable or perishable cargo. Such types of cargo cannot be left unattended, even for the duration of a flight, and the presence of personnel qualified in their handling is necessary on the airplane on which they are carried. Safety and efficiency of the operation will therefore be enhanced.

"3. Cargo operators also need to have qualified personnel necessary for operation and maintenance purposes at various locations. They will optimize their missions if they are permitted to carry their personnel aboard their cargo flights, thus saving travel by regular passenger flights.

"4. The Airworthiness Standards applicable to the Supplemental Type Certificate of the Airbus A310-221/-222, as well as the current Airworthiness Standards, address carriage aboard commercial flights of [only]:

"Crewmembers, including flight crewmembers and cabin attendants, who are each assigned duties associated with the operation of the airplane, and;

"Passengers, who have no expected ability in the use of emergency provisions, and therefore need to be attended.

"The categories of occupants for which this exemption is sought are qualified aeronautical personnel. Furthermore, they are trained in the autonomous use of emergency equipment and emergency exit operation. It will also be required that the operator allows access to these seats only to persons found able to perform these tasks on their own.

"5. Therefore, the assist space adjacent to the emergency exits required by § 25.813(b) for assisting the passengers in evacuating is not necessary, since the proposed categories of personnel will be trained in door operation and emergency evacuation. Both doors are equipped with a power assist-opening system and automatically inflating slides.

"Likewise, the requirements of §§ 25.1447(c)(1) and (c)(3)(ii) [for oxygen dispensing units to be automatically presented] before the cabin pressure altitude exceeds 15,000 ft. are compensated by the users having knowledge of equipment location and use. The masks provided are quick-donning masks with regulator and are immediately available to seated occupants [in a similar manner as for flight crewmembers. As to the § 25.1447(c)(1) requirement for a ten percent excess quantity of dispensing units,] this is mainly required for two purposes: use by cabin attendants moving along the aisles, and passengers awkwardness to reach one mask. None of these factors applies to the [proposed] configuration.

"[The] requirements of § 25.785(d) to have [handgrips] installed when seatbacks do not allow a firm handhold could not be met due to the three [rearward] facing seats. For the [proposed] categories of occupants, the recommendation to remain seated with seat belt fastened, as far as practicable, will be made in order to limit moving around to the necessary minimum. Nevertheless, ...several holding devices are available.

#### "PUBLIC INTEREST

"The granting of this exemption will be in the public interest, [since by] carrying supernumerary persons aboard their cargo flights, the U.S. operators of the A310-222/-221 P/F Airbus airplanes will be able to operate under optimal safety conditions, to render their operation more efficient, and to make substantial savings in carrying their personnel from one place to another.

The reasons for these benefits are developed in arguments 1, 2, and 3 above. This will also improve the utility of cargo airplanes.

#### "ACTIONS TAKEN BY DA TO PROVIDE AN EQUIVALENT LEVEL OF SAFETY

"In order to ensure [compliance with] the conditions provided in support to this exemption, DA proposes to include in the FAA-approved Airplane Flight Manual Supplement an operating limitation restricting the total occupancy to eight persons and occupancy of the jumpseats by persons designated by the operator that are:

"1. Included in one of the following categories:

- a) A crewmember,
- b) A company employee,
- c) An FAA air carrier inspector or an authorized representative of the National Transportation Safety Board who is performing official duties,
- d) A person traveling to or from assignment who is necessary for:
  - (i) safety of the flight;
  - (ii) the safe handling of animals;
  - (iv) the security of valuable or confidential cargo;
  - (v) the preservation of fragile or perishable cargo;
  - (vi) experiments on, or testing of, cargo containers or cargo handling devices;
  - (vii) the operation of special equipment for loading or unloading cargo;
  - (viii) the loading or unloading of outsize cargo.
- e) A person performing duty as an honor guard accompanying a shipment made by or under the authority of the United States,
- f) A military courier, military route supervisor, military cargo contract coordinator, or a flight crewmember of another military cargo contract air carrier or commercial operator, carried by a military cargo contract air carrier or commercial operator in operations under a military cargo contract, if that carriage is specifically authorized by the appropriate armed forces,

g) Any other person, for which the operator has obtained due authorization from the Administrator;

"2. Found by the operator to have the demonstrated physical ability to autonomously use the emergency provisions.

"3. Instructed by the operator, in accordance with FAA-approved procedures, on the autonomous use of the emergency provisions, and orally briefed before each takeoff by an appropriate crewmember as to the location and use of the emergency exits and emergency equipment."

#### "REQUEST FOR WAIVER

"DA believes that good cause exists to waive the publication and comment requirements of Section 11.27(c) of the FAR, in accordance with Section 11.27(j)(3)(i). In particular, we feel that the main purpose of this petition and the reasons presented in this petition are identical to exemptions previously granted by the FAA. The exemption granted to Airbus Industrie as TC holder for the comparable A300 F4-600R, similar in design to the A310-222/-221 P/F, should also be considered.

The FAA finds, for good cause, that action on this petition should not be delayed by publication and comment procedures as this petition is similar to exemptions issued recently for similarly configured airplanes and therefore would not set a precedent.

#### **The FAA's analysis/summary is as follows:**

Part 25 aircraft certification regulations do not address occupants other than crew and passengers. Accordingly, the FAA has previously granted petitions for exemption to allow the carriage of persons in addition to flightcrew on freighter airplanes, provided certain conditions were met. Those conditions have varied, depending on the airplane design, the nature of the proposals under consideration, and the number of persons involved.

Daimler-Benz Aerospace Airbus has requested relief from the requirements of §25.857(e), which permit carriage of only cargo when a class E cargo compartment is installed on the airplane. Class E cargo compartments are usually remote from the flight deck and encompass the entire interior of the airplane. Fires that might occur in this type of cargo compartment are controlled by starving the fire of oxygen. This is accomplished by depressurizing the airplane and maintaining a cabin altitude that will not support combustion. For this reason, only crewmembers occupying the flight deck are normally permitted on board such airplanes.

A major concern in permitting occupancy by non-crewmembers outside the flight deck on such airplanes is in assuring that there is a suitable means for preventing smoke penetration into this occupied

area. Another concern is that the persons allowed on board the airplane are limited to those that are briefed on emergency equipment and procedures and are found by the operator to be both physically fit and willing to use the emergency equipment and means of emergency egress provided. Daimler-Benz Aerospace Airbus's design satisfies these concerns by providing a smoke curtain, and proposing appropriate limitations on the occupants.

A major positive feature of Daimler-Benz Aerospace Airbus's A310-221/-222 proposal is the retention of the forward passenger doors and inflatable escape slides to facilitate emergency egress. These doors are much larger than the Type III exits that would be required for this number of occupants. The FAA considers that an assist space is not necessary in this case due to the higher level of training and awareness of the occupants.

The requirement for handholds is to assure that occupants have a means to steady themselves in moderately rough air while traversing the main aisles of typical passenger airplanes. On the proposed A310-221/-222 freighter, the occupied area is very small, with no aisles and nowhere to go, and it is possible to return to each seat very quickly. Therefore, the FAA concurs with the petitioner that it is not necessary to provide dedicated handholds beyond those that may be already incidentally available.

The FAA considers that supernumeraries should have a supplemental oxygen system that is comparable to the automatically presented mask system that is required for passengers. However, taking into account the extra knowledge and training that supernumeraries will have, it is not considered necessary that an equivalent system be provided. Daimler-Benz Aerospace Airbus's proposal provides for masks that are installed in a readily accessible location visible to all occupants, and that are of the quick-donning variety, which requires only a single motion to unstow and don. A signal to don masks is proposed to be by the simultaneous illumination of a lighted sign and a chime (the evaluation of this system for acceptability should include a determination that the chime or other dedicated aural means is sufficiently loud to awaken occupants during expected ambient noise levels). This signal is initiated automatically prior to the cabin altitude reaching 15,000 ft., with manual backup capability from the cockpit. Since the supernumeraries will be briefed on the location and donning procedures of these masks and the signals to require their use, the difference of this system from automatically presented masks provided to passengers in accordance with the requirements of § 25.1447(c)(1) is considered acceptable. In addition, the FAA concurs with the petitioner's proposal that the requirements of § 25.1447(c)(1) for ten percent more masks than occupants is unnecessary and inappropriate in this case. However, in response to the petitioner's incorrect assertion that the ten percent overage requirement is based, in part, on "passenger's awkwardness to reach one mask," this requirement is, in fact, intended to provide for flight attendant usage while traversing the aisle and to accommodate infants held in laps.

For the lavatory, the petitioner proposes the installation of one mask in lieu of the two masks required by § 25.1447(c)(3)(ii), but no arguments are offered in support of this proposal. The FAA nevertheless believes that an exemption is warranted because neither flight attendant assistance nor parent-child occupancy of the lavatory would occur on this airplane. Since the petitioner does not address any

further aspect of the lavatory oxygen system, the FAA assumes that it is the typically provided automatically presented mask as required, and is not a subject of this exemption.

In consideration of the foregoing, I find that a grant of exemption is in the public interest and will not affect the level of safety provided by the regulations. Therefore, pursuant to the authority contained in 49 USC 40113 and 44701, delegated to me by the Administrator (14 CFR 11.53), Daimler-Benz Aerospace Airbus is hereby granted an exemption from §§ 25.785(d), 25.813(b), 25.857(e), and 25.1447(c)(1) & (c)(3)(ii) of the Federal Aviation Regulations. The petition is granted to the extent required to permit supplemental type certification of Airbus Model A310-221/-222 passenger-to-freighter airplanes, with provisions for the carriage of persons other than flight crewmembers when the airplane is equipped with two floor-level exits with escape slides, within the occupied main deck area. The following limitations apply:

1. The airplane flight manual must contain a limitation that occupancy outside of the flight deck is restricted to a maximum of four persons;
2. Occupants are limited to the categories specified in §§ 121.583(a)(1) through (7);
3. Each occupant must be briefed by a flight crewmember on the use of the exits and emergency equipment prior to each flight; and
4. The operator must determine that each occupant is physically able to accomplish the necessary emergency procedures.

Issued in Renton, Washington, on August 31, 1995.

/s/ Darrell M. Pederson  
Acting Manager, Transport Airplane Directorate  
Aircraft Certification Service, ANM-100